

NETWORK PROCESSOR SYSTEM

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ABSTRACT OF THE DISCLOSURE

summary

The present invention consists of a general purpose, software-controlled central processor (CP) augmented by a set of task specific, specialized peripheral processors (PPs). The central processor accomplishes its functions with the support of the PPs. Peripheral processors may include but are not limited to a packet parser, which provides the central processor with a numerical summary of the packet format; a packet deconstructor, which extracts designated fields from the packet the positions of which are determined by the central processor according to the packet format; a search engine, which is supplied a lookup index by and returns its results to the central processor; and a packet editor which modifies the packet as determined by the central processor using (in part) information returned from other peripherals. At each step in the use of this network processor system, the central processor has an opportunity to intervene and modify the handling of the packet based on its interpretation of PP results. The programmable nature of the CP and the PPs provides the system with flexibility and adaptability: rather than having to modify a circuit or system design in an ASIC or other hardware, new packet processing applications may be accommodated through the development of new software and its deployment in the central and/or peripheral processors.